



THE ZOO GOER

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Front Cover: Emblem of America and Bicentennial bird of the year, the bald eagle is an important and striking Zoo exhibit.

Back Cover: New at the Zoo is the handsome dama gazelle, largest true gazelle and native to the deserts of North Africa.

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Eagles

The sight of an eagle in the wild is an unforgettable experience. Sadly, it's becoming less common every day. Even a non-ornithologist seeing one for the first time is likely to realize that such a large bird of prey can be nothing but an eagle. The wings especially seem unusually large and incredibly flexible, beating in a kind of fluid slow-motion no other bird duplicates.

Previous page: A breeding pair of eagles makes its home in the Zoo's large flight cage atop Bird House hill. Full grown trees and a rock waterfall simulate the bird's wilderness habitat.

Wings stretching six feet and tail fanned, the Zoo's golden eagle gives striking proof of why the ancient Romans considered it the "king of birds" The name derives from the bird's "golden" colored crown and nape.

Anyone who has seen an eagle knows why they have been chosen for centuries to signify power and sovereignty. Three thousand years ago the kings of ancient Babylon used representations of eagles on their ceremonial scepters. The ancient Greeks, who believed every kind of bird to be a messenger of a god, considered the eagle the messenger of Zeus, the king of gods. The Romans called the

golden eagle "king of birds." When the infant United States was looking for an emblem, Congress bypassed the golden eagle, which is present in the New World as well as the Old, and chose the bald eagle, a native North American eagle that is not found on any other continent. After two centuries of our currency, it is safe to say that the bald eagle's likeness has been reproduced more times than any other bird.





Hooked beak and taloned feet mark birds of prey, such as the Zoo's imperial eagle, as meat eaters. The strong, curving beak is perfect for ripping and tearing prey into bite-sized chunks. Sharp and strong talons enable eagles to pierce and hold a variety of prey from slippery fish to small mammals. Typically, eagles have three toes forward, one back.

Besides association with kingship and civil authority, eagles have long been proverbial for other reasons. One is keen eyesight. In fact, birds of prey—hawks and vultures no less than eagles—have excellent eyesight, perhaps unrivalled in the animal kingdom. Eagles are also noted for longevity, and here again folklore has a basis in fact. Several species have lived up to 50 years in captivity.

In ironic contrast to man's glorification of the eagle as a symbol, his treatment of the actual bird has been the reverse. Western sheep- and cattle-men have shot eagles from airplanes. Settlers have destroyed their habitat to make farms. By spreading pesticides, man has affected the reproduction of eagles and other birds of prey.

Ornithologists group the eagles in several distinct but related groups of birds of prey. One group is the genus *Aquila*, whose members are sometimes called the "true eagles." This genus includes the golden eagle *Aquila chrysaetos*, formerly found throughout North America but now restricted to the West and far North, and the imperial eagle (*Aquila heliaca*), a Eurasian species on exhibit at the National Zoo. The genus *Haliaeetus* live near water since fish make up a large portion of their diet. There is only one fish-eagle in North America—the bald eagle (*Haliaeetus leucocephalus*).

Immensely complex as life on this planet is, all of it derives energy from a single source—the sun. Plants are able to utilize the sun's energy to make their own food.

Plant-eating animals in turn obtain both nourishment and energy from plants. Finally, predators take a percentage of the plant-eating animals. The simplest sort of food chain is completed when an eagle catches a ground squirrel which has fed on grass seeds. Other food chains may involve a few more steps. When a bald eagle eats a herring, the nutrients and energy it gets are ultimately derived from microscopic, single-celled algae. Tiny crustaceans eat these algae and are eaten by small fish, which are in turn eaten by the herring.

Food chains are further complicated by the fact that most predators feed on a sizable number of prey species. Golden eagles in the West regularly feed on ground squirrels, prairie dogs, jack-rabbits,



cotton-tail rabbits, grouse, and quail, to name just a few.

Some ranchers also insist that golden eagles kill newborn lambs and calves. Conservationists grant that the eagles may do so on rare occasions. But they point out that the victim was very likely quite sickly and not likely to survive—if indeed it was not dead already when the eagle found it. Further, exterminating eagles does more harm to the rancher than good since in a single spring a breeding pair of golden eagles and their young will consume over 500 rodents and rabbits. All these rodents and rabbits would, if they lived, consume as much grass as one adult sheep and two adult cows. Eliminating eagles can only help species that compete with grazers for food.

The bald eagle has an even more varied diet than the golden eagle. In fact, some of its ways of getting food have subjected our national bird to ridicule and even downright abuse. When it comes to obtaining a meal, the bald eagle is an opportunist. It will scavenge or steal!

Ben Franklin considered the bald eagle "a bird of bad moral character. He does not get his living honestly . . . too lazy to fish for himself, he watches the labor of the fishing-hawk, and when that diligent bird has at length taken a

Immature bald eagles, such as this Zoo-born specimen, are frequently mistaken for golden eagles and shot by ranchers who believe they kill newborn lambs and calves. It takes 3-4 years before bald eagles acquire their characteristic white head and tail.



Powerful predator, the bald eagle soars on wings that when extended nearly seven feet feature widely separated primary feathers. The spaced tips act as wing slots to reduce turbulence and increase efficiency.

fish and is bearing it to his nest for the support of his mate and young ones, the bald eagle pursues him and takes it away from him." Bald eagles do sometimes steal fresh-caught fish from the osprey or fishhawk, a smaller bird and better fisherman. Franklin, who favored the wild turkey as national emblem, added the somewhat cryptic remark that it made little difference which bird was selected since few people would be able to distinguish an eagle from a turkey.

While scientists would not use Franklin's word "lazy", they would agree that a bald eagle will not expend energy needed to catch live fish when dead fish are readily available. Out West, eagles gather where salmon are making a spawning run upstream. Then, live salmon fill shallow streams and dead ones line the banks. When an eagle is forced to do some real fishing, he may choose a perch on a branch that extends over the water and wait there patiently for a fish to

come to the surface. It is reported that he can swoop down and grab a fish in his talons without wetting more than his feet and legs. Waterbirds, small mammals, and almost any kind of carrion are other items in the bald eagle's diet.

Positioned at the top of the food chain, eagles are especially vulnerable to the effects of pesticides and other pollutants. Some, like DDT, are long-lived. Thus, while other insecticides break

down quickly into harmless constituents, DDT remains in the environment for years. When small birds or mammals eat plants or insects contaminated with DDT, they tend to store it in their fat cells. There the DDT remains, often in low enough concentration to be harmless to the animal itself. Also, DDT contaminates waters because of run-off from land, so that deposits build up in fish. An eagle that eats a large amount of such prey will build up DDT in its body.

Though most use of DDT has now been stopped by law, it still lingers in the environment. And other chemicals, such as dieldrin, still in use are suspected of having equally harmful effects on wildlife.

It is not known whether eagles or other birds of prey have actually died from a build-up of DDT or other pollutants in their tissues. What has been proven is that such chemicals drastically reduce reproduction. A breeding female with DDT in her system produces eggshells of abnormal thinness. While incubating the eggs, her own weight is enough to break them.

Another factor affecting eagles has been the destruction of wilderness areas. Bald eagles, for instance, build huge nests. They need very large trees—preferably evergreens—to support them. One nest in British Columbia was ten feet in diameter and weighed several hundred pounds. But in the Eastern United States, most

primeval forest is gone. Second-growth timber that has replaced it has usually not yet reached suitable heights. It is not surprising bald eagles are really numerous only in Alaska. Florida has the second largest population, thanks in part to conservationists who have successfully preserved known nesting sites there.

Besides Maine and Florida, the only states on the eastern seaboard where viable eagle breeding populations exist are Maryland and Virginia. The eagles' survival in this region is due to the Chesapeake Bay, which provides abundant fish and

offers remote nest sites in isolated salt marshes and creeks. Over the past decade, the Chesapeake Bay eagle population has declined, but the ban on DDT and greater efforts to monitor the Bay's water quality may eventually reverse the trend.

On a symbolic level, it is an encouraging sign for the bald eagle's future that the species has now bred at the National Zoo. A single chick hatched in May, 1973. The eaglet thrived and fledged that summer. Hopefully this is the beginning of a baby boom at the Zoo.

by Austin Hughes

Ironically, while America celebrates the Bicentennial, its symbol—the bald eagle—faces extinction. Although strictly protected since 1940, this uniquely American eagle is no match against habitat destruction, pesticides, and illegal hunting.



ZOO NEWS

Unique Clock Sings Time at Zoo

What is 36 feet high, weighs 12,000 pounds, has animals that move, and tells time? The Zoo's new glockenspiel, of course!

The glockenspiel (German for playing bells) is the imaginative gift of the late Dr. Ivy Pelzman of Washington. It's located about a hundred yards inside the Connecticut Avenue pedestrian entrance.

Looking something like a futuristic grandfather clock, the Pelzman Glockenspiel "stands" on steel feet three stories high. At the top is a four-faced clock, each face being seven feet wide. Below are four animated animal figures that perform every fifteen minutes. The lion and bear stand up and lift their forelegs; the elephant raises its trunk and turns its head; the giraffe moves its head up and down. Five birds "fly" around the animals' heads. Below the animals hang 35 bronze bells with a three octave range. Beneath the two bell rows is a see-thru plastic booth which houses a console for live playing by a carillonneur. It is a special treat to see a carillonneur in action since they

Moving animals and chiming bells now tell time at the Zoo. The 36 foot high glockenspiel (German for playing bells) is located near Connecticut Avenue.



usually perform out of sight in bell towers. The Zoo hopes to have Saturday morning recitals thru the summer.

An intricate electronics system enables the glockenspiel to ring out automatically. From 9 a.m. to 8 p.m. (on Sundays 10 a.m. to 8 p.m.), the big clock strikes the hour on its 253-pound base bell and plays two songs. The traditional "Westminster Chimes" plays on the quarter hour and the animals go through their motions.

In 1970, Dr. Pelzman approached the National Zoo about donating a glockenspiel in memory of his wife, Katherine. Both of them had loved the smaller glockenspiel at the Central Park Zoo in New York City.

Dr. Pelzman, zoo architects, the Fine Arts Commission, and a bell manufacturing company worked together to produce an appropriate design. Before the final plans were drawn, Dr. Pelzman died, but bequeathed funds to complete the project. His donation represents the largest sum ever given the National Zoo by a private citizen.

As Zoo director, Ted Reed, said after watching the Pelzman Glockenspiel in action, "It's simple, dignified, charming, whimsical, practical, and a source of great amusement to children and adults."

by Michael J. Morgan
Public Information Assistant

The three-foot giraffe nods its long neck, a bear stands up on his back legs, and an elephant lifts its trunk. It's all part of the hourly animal show put on by the Zoo's new glockenspiel, timely gift of the late Dr. Ivy Pelzman.





Tails

A bear has a stumpy one; a crocodile has a long, thick one; a lion a tassled one; a lesser panda a furry striped one. A zoogoer sees a lot of animal tails, with different lengths and uses. A spider monkey uses his long tail like an extra hand; he can pick up food with it and can even support his entire weight hanging by his tail alone. A gnu uses his tail to flick away annoying insects. A wolf uses his tail to produce a "language" of signals and so communicates with other wolves.

Vertebrates, the animal group that includes not only man but also all of the usual animals, are, of course, distinguished by the fact that they have backbones. Because they have backbones, the vertebrates are the only animals with tails. A tail, after all, is basically only an extension of the backbone beyond the hind pair of limbs. Man, of course, has a rudimentary, almost invisible one as do others like the giant panda.

The first vertebrates were fish-like creatures. Their tails were useful to them for the same reason that a fish's tail is useful to it—in swimming. The tail fin sweeps back and forth from side to side, pushing against the water and propelling the fish forward. The basic fish tail has assumed many different shapes over the course of

Previous page: Using its tail like an extra arm, the Zoo's prehensile-tailed skink lives in trees where a grasping tail is useful.

Right: Swinging by its tail, one of the Zoo's troop of spider monkeys shows how handy an extra arm can be for tree climbing.



evolution, as amphibians evolved from fish, then reptiles from amphibians, and finally birds and mammals from reptiles.

When amphibians first moved onto the land 350 million years ago, they brought along tails inherited from their fish ancestors. These first amphibians were low-slung creatures that were probably rather sluggish on land and presumably still spent a lot of time in the water. When swimming, they doubtless lashed their tails from side to side to provide propulsion just as their fish ancestors had done. Still, the first amphibians' tails were nothing like typical fish tails. They probably resembled the tails of the tadpoles and certain aquatic salamanders of today, having only a relatively small flap of fleshy fin but lacking the bony or cartilaginous struts of fishtail fins. On land, the early amphibian tail served no very obvious purpose. All that can be said for it was that it provided a sort of counterweight, preventing the amphibian from being "front-heavy."

Among today's amphibians, the salamanders have preserved the ancestral body plan with little variation. The most obvious difference between them and early amphibians is that they tend to be much smaller. Frogs, on the other hand, have lost their tails as adults in the process of becoming highly specialized jumpers. When frogs swim, they get most of their propulsion from the long hind legs that power their leaps ashore. Still, as tadpoles or larvae, frogs usually do

have long tails and use them in swimming. Frogs are not the only tailless vertebrates that outgrow their tails. In a sense, all tailless vertebrates, including humans, do the same thing. As embryos, we have tails which we lose during development.

There are no tailless reptiles. Even snakes have tails—although it is not easy to see where the rest of the body ends and the tail begins! Alligators and crocodiles have powerfully muscled tails. An African antelope approaching a river for water may be knocked off his feet by a quick blow

from the crocodile's tail. The crocodile can then grasp the antelope in his jaws and pull him under water before the startled mammal is able to recover his footing. Once under water, the crocodile uses its tail to spin itself around to better twist off fleshy chunks of its prey.

Many lizards can shed their tails when pursued and later grow new ones. The shed tail may even continue to writhe for awhile in automatic muscular contractions, thus distracting a predators' attention from the fleeing lizard. The "glass lizard" is a legless

The large, strong tail of the smooth fronted caiman can be used as a powerful weapon and to spin it around in the water to twist off pieces of its prey.



species that sheds its tail with particular ease. The lizard got its name because it seems literally to “break in two” when touched.

When a lizard’s tail is shed, the break occurs within a tail vertebra, never between vertebrae. There are special muscles encircling the main artery of the tail that clamp the artery tight after the tail has been shed, thus keeping blood-loss from the lizard’s tail-stump at a minimum. When the tail is regenerated, the lost vertebrae are not regrown. They are replaced

Right: The tail of this leopard gecko is typical of certain reptiles whose tails hark back to the ancestral shape of the first amphibians who crawled onto land 350 million years ago.

Below: Many lizards, like the Zoo’s leopard gecko, can regrow their tail if cut off by accident or predator. The shed tail may even wriggle briefly afterwards, thus distracting a predator’s attention from the escaping lizard.



instead by a cartilage rod. In rare cases, incomplete fracture of the tail can cause the growth of a new tail while the old tail is still attached. The result: a fork-tailed lizard!

Some tree-dwelling lizards have prehensile, or grasping tails, to assist them in climbing. An example at the Zoo's Reptile House is the prehensile-tailed skink of the Solomon Islands. The venomous lizard known as the gila monster, a native of the American Southwest, uses his tail for yet another purpose—fat storage. The gila monster's tail is extraordinarily thickened and apparently acts as a valuable food reserve in the species' harsh desert habitat.

The first birds of which we have fossil remains had long bony tails just like their reptilian ancestors. But, as birds improved their powers of flight, they jettisoned most of their extra weight. The bony part of a modern bird's tail is very short, indeed, hardly visible. What we think of as a bird's tail is actually only the tail feathers. Birds use their tail feathers in a variety of signals and displays by which they communicate with one another. They may fan or wag their tails in courtship displays, for instance. The long tail plumes of male pheasants, lacking in the female, are displayed to her in courtship.

The tail of mammals has assumed more different shapes and purposes than in any other group of vertebrates. Climbing mammals, jumping mammals, and swimming mammals all may have specially

adapted tails. Also, various mammals have found ways of using their tails in communication.

The spider monkey, the woolly monkey, and other New World monkey species in the Monkey House have evolved prehensile tails to aid them in their climbing. These monkeys have a hairless area on the tail that is whorled like a finger for improved grip and sensitivity. Many other tree-climbing monkeys do not have prehensile tails, but their tails none the less do play a role. When a langur, for instance, is sitting upright on a branch, his long tail hangs down beneath him. It thus lowers his center of gravity stabilizing the monkey. Stability is important, since the langur sleeps in just such a posture. When an arboreal monkey leaps from branch to branch, the tail is also important, serving as a kind of rudder.

Some arboreal mammals besides monkeys make similar use of their tails—like the tree kangaroos in the Reptile House.

Tree kangaroos, of course, are very special kangaroos. But the more familiar members of the kangaroo family find their tails even more valuable. The red kangaroo is an example. This medium-sized kangaroo gets around by broad jumping his way across open grassland. His tail is long and thick.

Used like a ship's rudder, the long and furry tail of a tree kangaroo "steers" it in leaps from one limb to another. The tail also serves as a stabilizer when the animal sits high on a branch.



Thus, it counterbalances the front half of his body and brings his center of gravity back over his massive hind legs. The red kangaroo also uses his tail as a prop when he is resting, making it easier for him to stand on his hind legs. When jumping, a kangaroo can make a turn in midair simply by lashing his heavy tail, thus, reversing his direction in order to escape danger.

Many mammals, like the Zoo's white tigers, swim well without any particular adaptations for swimming. Others are specialized for swimming to a greater or lesser degree. The ultimate specialization is represented by whales and dolphins, which can never come ashore. The beaver is equally at home on land or in the water but does possess a tail specially adapted for swimming. The beaver moves his broad, flat tail up and down to propel him forward.

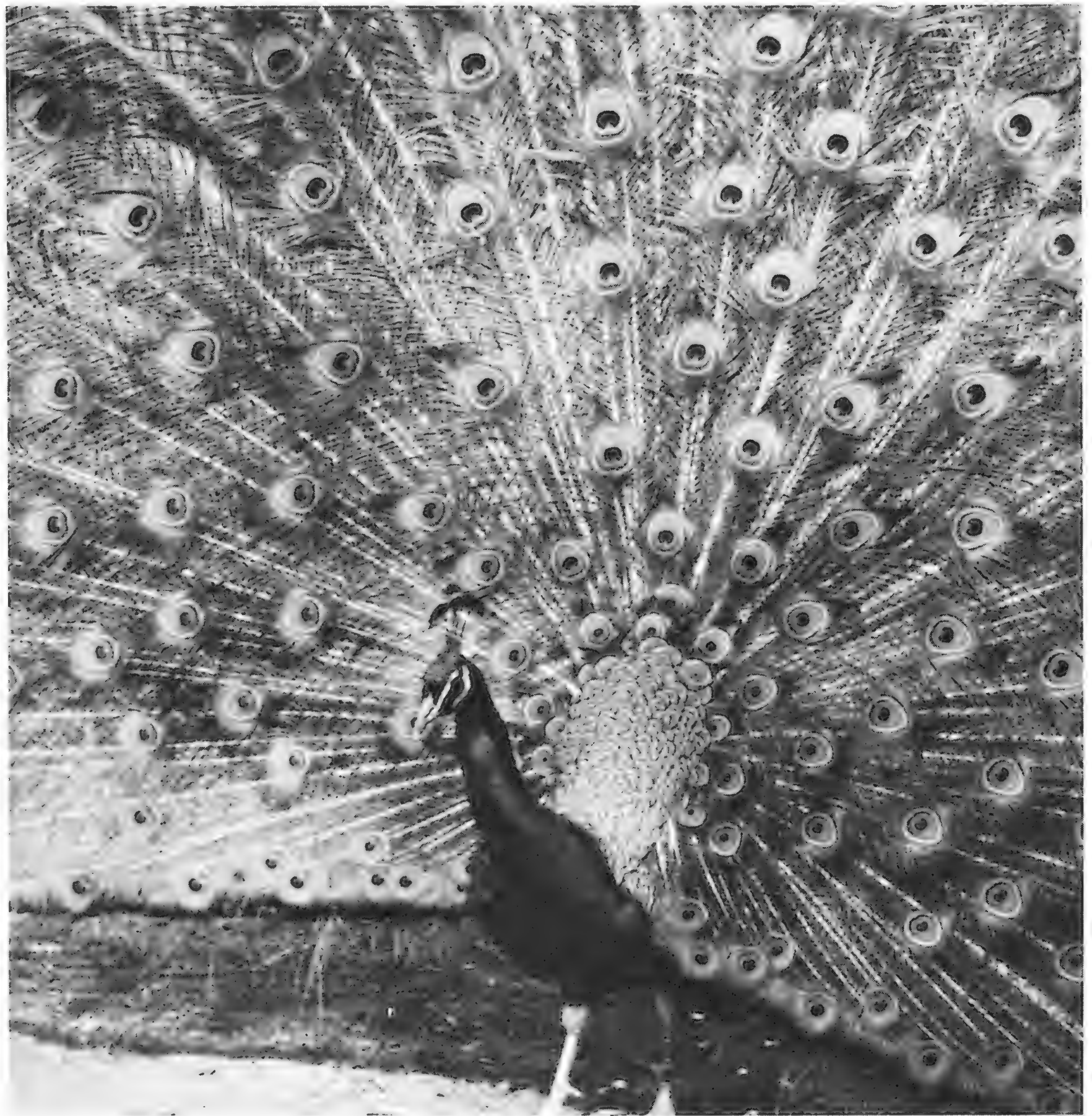
An even better swimmer, the sea lion, has almost no tail at all. Its rear "flippers" are really its hind legs. Zoogoers who spend a few minutes at the sea lion pool will see that the front flippers provide the power stroke in swimming. By contrast, whales and dolphins propel themselves by means of their tails. In these most aquatic of mammals, the tail forms a horizontal fin, in contrast to the vertical fin of fishes. Thus, the whales' tail fin moves in an up-and-down motion in swimming. Evolution, it seems, took the tail out of the water as a side-to-side paddle and eventually returned it as an up-and-down paddle.

Perhaps the most interesting use mammals make of tails is in communication. This sort of behavior is highly developed in the wolf. Members of the wolf pack use subtle differences in tail posture to indicate varying degrees of threat, appeasement, or reassurance. Some of these

tail signals have persisted in the wolf's descendant, the domestic dog. Tail-wagging is a sign of friendly submissiveness among wolves as it is with dogs.

by Austin Hughes

The spectacular plumage of an Indian peafowl's tail feathers serves as an important signaler in courtship, as well as other display forms of communication.



BOOKNEWS

Among the Elephants

by Iain and Oria Douglas-Hamilton;
Viking Press, 1975, 285 pp., \$14.95.

It is hard to say whether we enjoy animal books more for what we learn about wildlife, or for what we learn about the people who study it. The life seems so delightfully uncluttered, we forget the years of study and discipline that precede and follow the days in the field. Nikko Tinbergen's introductions to this book emphasizes this and sets the book in perspective.

Iain Douglas-Hamilton, fresh from Oxford, arrived in East Africa, with great enthusiasm and small funds to study the elephants of Manyara Park in Tanzania. The Manyara population was growing and beginning to destroy the acacia trees in the park. This problem was common to most of the parks, but Manyara was small and famed for its lions who loafed in these trees. The questions facing the park authorities was whether to control the elephants by culling the herds, or allow them to establish some sort of balance, even at the cost of some trees. To reach such a decision, more data were needed. How many elephants were there? Was the population really growing? How fast did acacia trees grow? Did elephants leave the park?

In order to answer these questions, Douglas-Hamilton had to recognize individual elephants. He made a photographic file, noting individual scars, torn ears, tusk formations. He estimated age by an ingenious stereoptic camera arrangement. This allowed him to measure elephants against a height scale which had been worked out in another park where elephants were being culled and could be studied in detail. But most of his work was observation, patient, detailed, and often risky.

From his study, elephants emerge as sociable, intelligent creatures with strong family loyalty. The Manyara elephants lived in large kinship groups, led by matriarchs. These of-

ten split into smaller groups composed of mothers, daughters, and calves. These smaller groups were usually found in the same area. The bulls were sociable but were not part of the larger groups except when a cow was in breeding condition. Calves were treated tenderly in their early years and had a long adolescence.

Douglas-Hamilton's conclusion about Manyara was that the park should be extended into the neighboring forest preserve. There should then be enough land to support the elephants without too much wear on the vegetation. Manyara was in a unique position among African parks, having available land next

Wild elephants are dangerous, but author Oria Douglas-Hamilton and her husband developed such a special friendship with some that they were able to approach them close-up. Here Oria introduces her baby girl to a large female and her calf.



door. Douglas-Hamilton feels that each park should be managed on its own merits: i.e. culling in some and allowing others to pass through cycles of destruction even at the cost of massive starvation of elephants as happened in Tsavo.

Oria Douglas-Hamilton writes the middle section of the book, and is also responsible for many of the photographs. Here is a girl who grew up in East Africa and is obviously competent in dealing with bush housekeeping, without being one of those sickeningly intrepid explorers' wives. She is sophisticated, sensitive, and obviously convinced of the importance of her husband's work.

Lest one be carried away with the charm of elephants, and it's easy af-

ter reading this book, it might be well to repeat a warning offered by both the authors and Tinbergen. The relationship enjoyed by the Douglas-Hamiltons with certain elephants, is a special thing. It is built on their knowledge of the animals and the animals' knowledge of them and built over many, many months. It is not for the rest of us whether in the wild or at the zoo. Elephants are powerful. Their trunks are strong and have a surprisingly long reach. They may snatch at anything extended to them. They should be appreciated and enjoyed from a respectful distance.

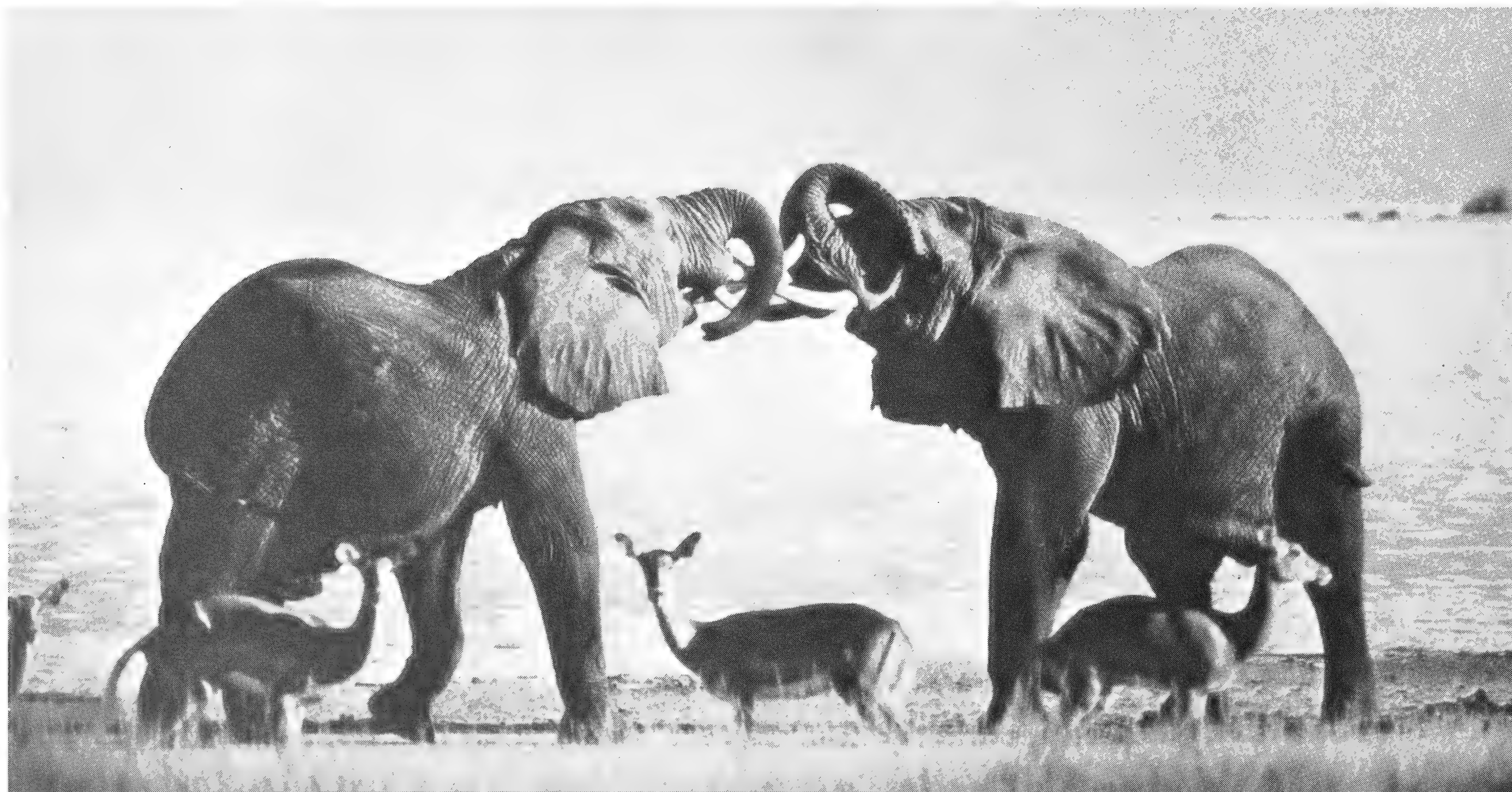
by Sally Tongren
FONZ, House Docent

Living Trophies

A Shocking Look at the Conditions in American Zoos by Peter Batten; Thomas Y. Crowell Co., 1976, 246pp. \$9.95.

No expose has ever been entirely fair and balanced. In their zeal to expose evils, authors almost invariably underemphasize the good. *Living Trophies* is no exception. The result of a five-month tour covering most of the larger and many of the smaller U.S. zoos, this book details countless examples of what the author considers faulty animal care. In a number of cases, the author's criticisms will be dismissed as petty or simply uninformed. But there is no

Two bull elephants fence playfully with their trunks while impala stand by, unperturbed. The fascinating habits of African elephants highlight an important new book, *Among the Elephants*.



doubt that in some zoos Batten describes appalling conditions.

Thus his book should provoke a thorough examination of conscience on the part of anyone involved in zoo management. It serves as a warning that an increasingly aware public will no longer tolerate the inhuman conditions of the old "roadside menagerie." To zoos, like the National Zoo, that escaped major criticism, this book can provide a reminder of just how much progress has been made over the years.

The author is not a scientist, but he is a former zoo director. Most of the book is simply a record of what he saw on his nationwide zoo tour. In a few cases, Batten interviews zoo personnel and quotes previously published literature.

Since Batten made only brief visits to each zoo, he may at times have mistaken a temporary condition for a permanent one. For instance, he cites the National Zoo for keeping a sea lion in a bear cage. In fact, the sea lions were kept in cages only a few days while their pool was being painted. If Batten had taken the trouble to ask a keeper, he would have learned that the situation was only temporary. It sometimes seems that Batten wants to get in a few digs at every zoo he visited, even the best ones. This is not to deny that Batten saw some shocking conditions at certain zoos.

After revealing real abuses that do exist in some American zoos, Batten is far less enlightening about offering either causes or cures. He realizes zoos are here to stay, while hoping to see them improved. He contends bluntly that all problems stem from a single source—the 'incompetence' of zoo personnel. Not only is this charge grossly unfair, but it will alienate an audience that really should read Batten's book—zoo personnel themselves.

If we examine the problem of inadequate, old-fashioned exhibits, we can see how false Batten's charge is. Competent and dedicated personnel in zoos throughout the country are acutely aware of the shortcomings of antiquated zoo buildings, cages, and paddocks. They are unable to change them because the money is simply not forthcoming. An overextended city government or an apathetic public are at fault. In some cases, the answer may be that some zoos should close. But the decision does not lie with zoo personnel, who simply try to do their best with outmoded facilities. In addition, it is worth noting that many of the older exhibits rightly criticized by Batten as "unbiological" represented the best zoological knowledge of their time. Knowledge progresses faster than physical structures can.

Finally, there is an inexplicable anti-scientific streak running through

Batten's book. He seems to regard scientific research on zoo animals as an unmitigated evil. Actually, he seems to have a ludicrously distorted idea of what scientific research is all about. To Batten, all scientists are "vivisectionist" Frankensteins practicing bizarre cruelties on helpless animals. As it happens, scientific research will provide the only real cure for the abuses Batten has described. Only by learning all the requirements of animals as biological organisms can we hope to provide for them in captivity.

Batten is right that mistakes by human caretakers can cause misery or death for zoo animals. But accurate scientific knowledge is the only way to improve human error. Scientific knowledge can provide the basis for proper animal-care procedures. In his opposition to science, Batten casts his lot with the old-time zoo men who claimed to have a mystical communion with animals and an intuitive understanding of their wants. (Batten, of course, seems to think his own intuitions are always correct, while the intuitions of others are fallible.) In fact, an intuitive, emotional approach to animal care on the part of well-meaning but untrained personnel is one of the major reasons for the abuses Batten has seen in American zoos.

by Austin Hughes

Zoo Puppet Shows Staged by Aides Zoo

Are you a Zoodle at the National Zoo?

More than 50 junior members of FONZ are! They are participating in this summer's Junior Zoo Aide program which uses puppets to persuade zoogoers not to feed or tease the animals.

Heroes of each of the four different puppet shows are imaginary creatures called Zoodles, who talk in rhyme and persuade the other puppet characters not to litter, feed, or tease the animals.

As one of the Zoodles explains, "Zoodles try to help the animals that live here in the Zoo. And I try to teach visitors that arrive the whole day through. Not to mistreat the animals tho' I know they don't mean to . . . But they feed them things and they shouldn't. You'd be amazed at the things they do. It takes an awful lot of Zoodles to work here at the Zoo."

When asked why he thought the "no feeding" campaign was necessary, a FONZ puppeteer explained, "The public doesn't know that they can help the animals more by not feeding them. Now that we have a new Zoo with moated enclosures, it makes it easier for the visitor to feed the animals. I'm glad I can help the Zoo and animals by teaching the public. Maybe some of us will think now before throwing that peanut."

The four shows were written for FONZ by Bob Brown Marionettes, who also trained the volunteers. The puppets are scheduled to perform about every half-hour from 10 a.m. to 4 p.m. on weekdays until August 13 throughout the park.

Each show dramatizes a different but common Zoo problem such as feeding animals which are all on controlled diets, garbage being thrown into moated areas, and reaching to touch or tease animals which are now more accessible to the public. As each show ends, the Zoodle asks the audience to help: "Won't you come and join us. We need everyone of you."

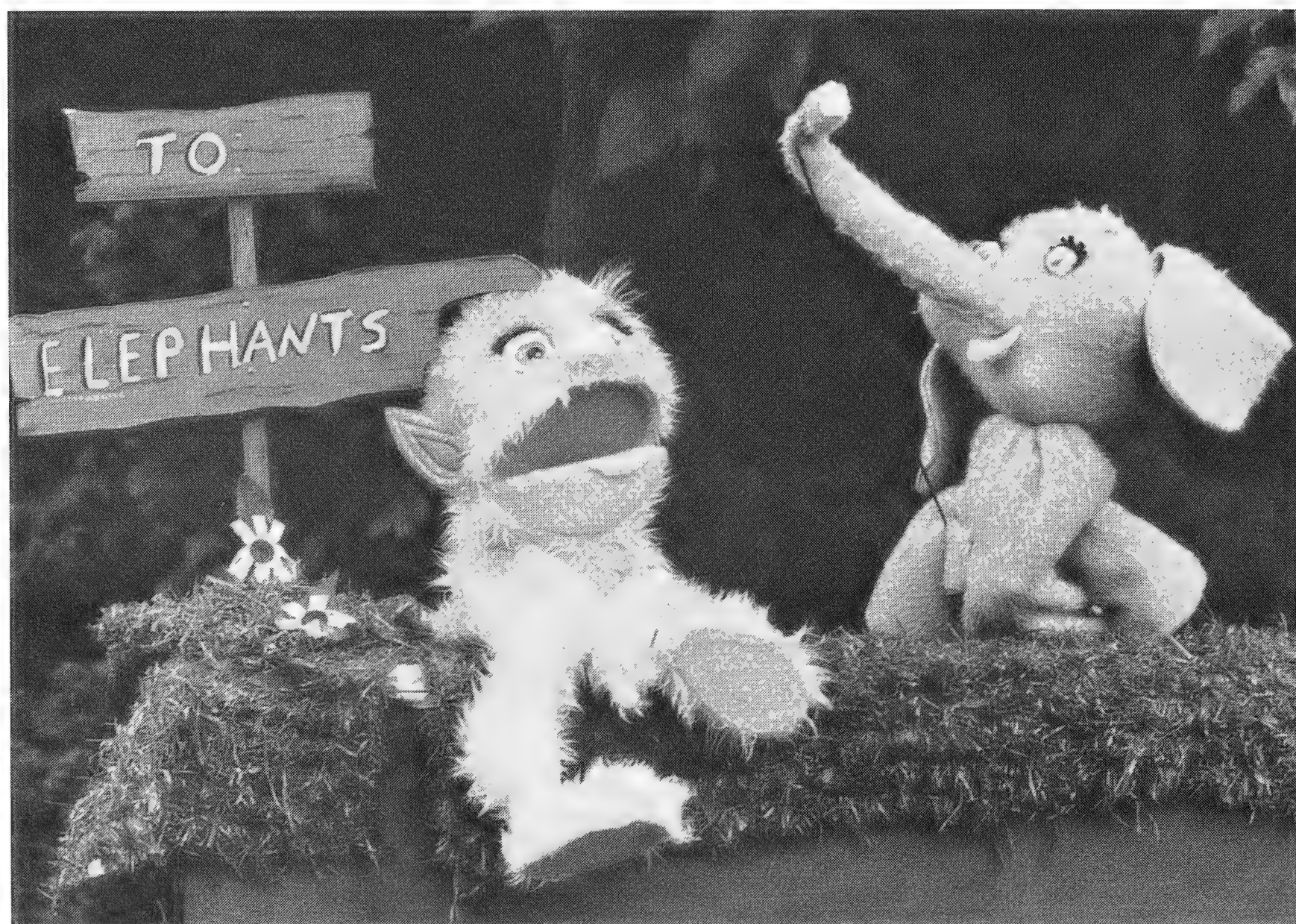
Come and be a Zoodle and help the National Zoo."

The titles of each show — "Tiger Tales," "Bird Bits," "Bear Facts," and "Elephant Epics" are keyed to the area in which the show is presented.

In past summers, Junior Zoo Aides have provided information to the public on endangered species and the "new zoo." This summer, by letting the "puppets do the talking," FONZ volunteers are using entertainment to help the Zoo carry out its important "no feeding" campaign.

by Donna Schlegel
FONZ Education Department

An imaginary Zoodle and a trumpeting elephant are among the colorful stars of four different puppet shows being produced this summer at the Zoo by FONZ junior members.



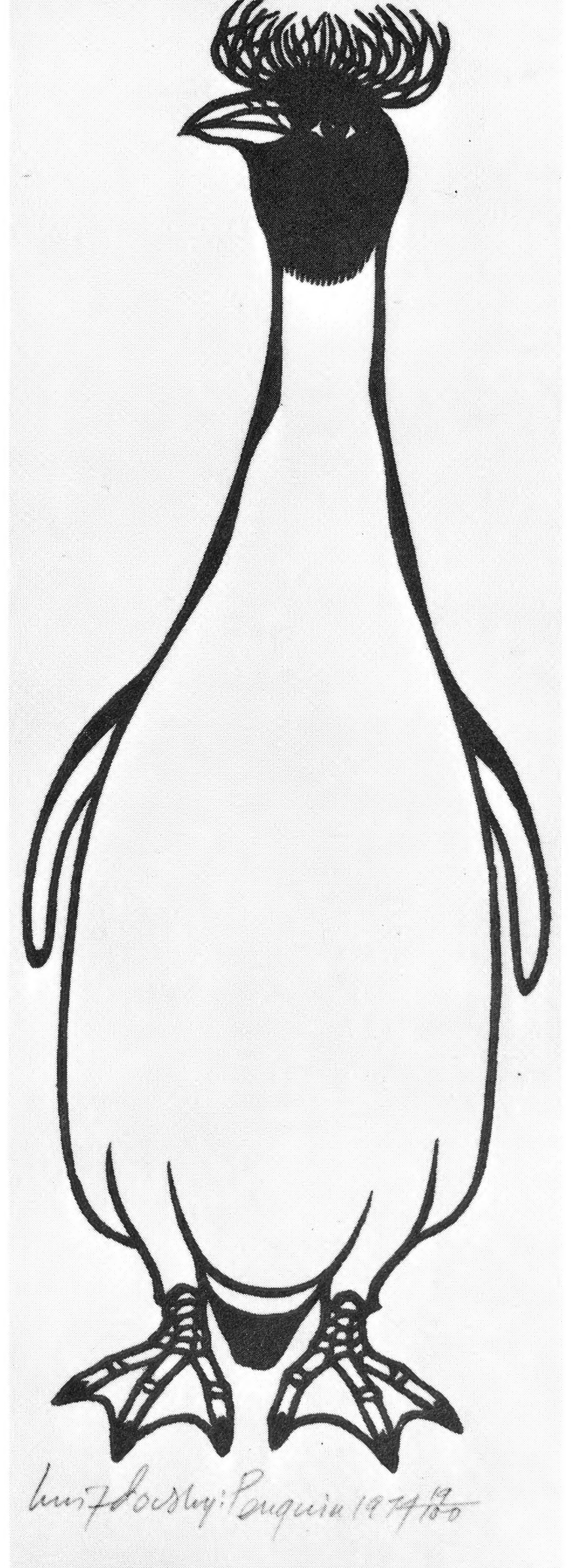
Members Invited to Animal Art Show

In July FONZ members can combine art-going and zoogoing. Georgetown's Fendrick Gallery, in cooperation with the Friends of the National Zoo, will have an unusual summer exhibition devoted to animal art.

Mrs. Daniel Fendrick, head keeper at the gallery, located at 3059 M Street, has invited members to the special exhibition, "Friends of (in) the Zoo:

Artists' Favorite Animals," which runs from July 13-31 (Monday thru Saturday, 10-6). FONZ members will be able to purchase, at a discount, selected works by two of the artists.

The exhibition dramatizes the different ways artists interpret animals from life-like—and almost life-size—wood carvings to nearly abstract animal designs on finely textured rice paper. One artist specializes in funny dogs; another uses snakes and butterflies to depict fantasies. Prices range from \$30 to \$1200.



Above, artist Jacques Hnizdovsky creates an unusual penguin woodblock print.

Left, carved in wood and painted by Felipe Archuleta, a lion, tiger, and giraffe are part of the wild scene at Georgetown's Fendrick Gallery.

Artist Completes Series for FONZ

Six of the National Zoo's most famous, fascinating, and favorite animals star in the limited-edition series of wildlife portraits drawn exclusively for FONZ by the Zoo's official artist, Warren A. Cutler.

The special series of wildlife prints has been featured in past issues of *The Zoogoer*. Now, with the completion of all six (giant panda, snowy owl, white tiger, colobus monkey, jaguar, and lesser panda), FONZ members have a final chance to obtain the complete set or individual drawings by returning the enclosed order card.

The six lithographs, each 18" by 24", are printed on the finest available paper and will be numbered and signed personally by the artist.

Warren Cutler has been the official illustrator of the National Zoo since 1973. His devotion to life-like detail has made him one of the outstanding wildlife artists in the world. He is frequently compared to Audubon. His one-man show at a major art gallery was an immediate sell-out.

Those interested in obtaining these collector-calibre prints should return the order card as soon as possible.



